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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/411,418	10/01/1999	JOHN A. CAREY	99-TK-257	8281

7590 01/29/2004

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EXAMINER

DAY, HERNG DER

ART UNIT	PAPER NUMBER
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2128

DATE MAILED: 01/29/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

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# Office Action Summary

Application No.

09/411,418

Applicant(s)

CAREY, JOHN A.

Examiner

Herng-der Day

Art Unit

2128

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 May 2003 and 16 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-20 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 May 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

1. This communication is in response to Applicant's Amendment and Response (paper # 7) to Office Action dated November 1, 2002 (paper # 5), mailed May 1, 2003 and Applicant's Response to Restriction Requirement (paper # 10) to Office Action dated September 26, 2003 (paper # 9), mailed October 16, 2003.

1-1. Claims 1, 3, 5, 7, 9, 11, 13, 15, 17, 21, and 25 have been amended; claim 24 has been cancelled; claims 21-23 have been cancelled due to restriction; claims 1-20 and 25 are pending.

1-2. Claims 1-20 and 25 have been examined and claims 1-20 and 25 have been rejected.

1-3. The indicated allowability of claims 1-2, 5-8, 10, 12-20, and 25 is withdrawn in view of the newly discovered reference to McGeer et al., U.S. Patent 6,421,808 issued July 16, 2002.

Rejections based on the newly cited reference follow.

### ***Drawings***

2. The proposed drawing correction filed on May 1, 2003, has been disapproved because it includes the following reference sign not mentioned in the description:

(a) Resource Vector O, in Fig.4 cont.

A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

***Abstract***

3. The Examiner has acknowledged without objection that the abstract has been amended.

***Specification***

4. The Examiner has acknowledged without objection that the title has been amended.
5. The Applicant has amended the specification. The original objections to specification, section 5 of paper # 5, have been withdrawn.

However, the disclosure of the substitute specification (paper # 8) is objected to because of the following informalities. Appropriate correction is required.

5-1. It appears that “(HDD”, as described in [0003] line 4, should be “(HDL)”.

5-2. In [0042] line 5, it is unclear what the “code m” refers to.

***Claim Rejections - 35 USC § 112***

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 3-4 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

For example, as described in [0049] lines 1-2 of the substitute specification, “Embodiments of the present invention can be implemented in systems where the requests and responses are not in a packet format”. It essentially sets no limitations on the requests and

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responses. In the rest of the specification the Applicant teaches implementations in systems where the requests and responses are in a packet format. Accordingly, without undue experimentation, it is unclear how one skilled in the art may implement the invention in systems where the requests and responses are not in a packet format, but in, for example, a free format.

The Applicant argues, "Non-packet interconnection technology is quite well known" in page 9 of paper # 7. However, Applicant's assertion does not appear to be supported in the specification. Claims 3-4 contain subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

***Claim Rejections - 35 USC § 102***

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) do not apply to the examination of this application as the application being examined was not (1) filed on or after November 29, 2000, or (2) voluntarily published under 35 U.S.C. 122(b). Therefore, this application is examined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

9. Claims 1-2 and 5-8 are rejected under 35 U.S.C. 102(e) as being anticipated by McGeer et al., U.S. Patent 6,421,808 issued July 16, 2002, and filed April 22, 1999.

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**9-1.** Regarding claim 1, McGeer et al. disclose a method for designing an initiator in an integrated circuit, said initiator being connected to an interconnect and arranged to issue packet-format requests, said method comprising the steps of:

defining if the interconnect is to be responsible for ordering responses to packet-format requests issued by said initiator (stored in a FIFO resides in the channel, column 13, lines 59-65);

defining the maximum number of requests which are permitted to be outstanding at the same time (a specific number of FIFO entries, column 19, lines 11-13); and

defining if a delay stage is required in said initiator (safe channel, column 14, lines 10-37).

**9-2.** Regarding claim 2, McGeer et al. further disclose said number of requests which are permitted to be outstanding are defined if the interconnect is responsible for ordering (stored in a FIFO resides in the channel, column 13, lines 59-65).

**9-3.** Regarding claim 5, McGeer et al. disclose a method for designing an interconnect having routing resources, said interconnect arranged to allow initiators to send requests to targets (channels, column 13, lines 20-31), said method comprising the steps of defining:

the number of routing resources between the initiator and the target (user defined channels, column 16, lines 60-67);

the arbitration method for arbitrating between requests (channel arbiter, column 17, lines 16-58); and

the association between the routing resources and the targets (receiver interface, column 17, lines 59-63).

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9-4. Regarding claim 6, McGeer et al. further disclose said method further comprises the step of determining if a delay is required after arbitration (reqPending, column 17, lines 25-57).

9-5. Regarding claim 7, McGeer et al. disclose a method for designing an interconnect having routing resources, said interconnect arranged to allow targets to send responses to initiators in response to requests from initiators, said method comprising the steps of defining:

the number of routing resources between the target and the initiator (user defined channels, column 16, lines 60-67);

the arbitration method for arbitration between responses (channel arbiter, column 17, lines 16-58); and

the association between the routing resources and the initiator(receiver interface, column 17, lines 59-63).

9-6. Regarding claim 8, McGeer et al. further disclose said method further comprises the step of determining if a delay is required after arbitration (reqPending, column 17, lines 25-57).

9-7. Regarding claim 9, McGeer et al. disclose a method of designing an arbiter in an integrated circuit comprising initiators and targets, and an interconnect coupled to communicate packets between the initiators and targets, said arbiter being provided between said initiators and said interconnect, said method comprising the steps of:

using an arbitration model having a plurality of different arbitration methods, wherein each arbitration method specifies whether the initiator is responsible for ensuring time based ordering of packets is handled, and selecting one of the plurality of arbitration methods available in said model (channel arbiter, column 17, lines 16-58).

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**9-8.** Regarding claim 10, McGeer et al. disclose a method of designing an arbiter in an integrated circuit comprising initiators and targets, and an interconnect coupled to communicate packets between the initiators and targets, said arbiter being provided between said initiators and said interconnect, said method comprising the steps of:

using an arbitration model having a plurality of different arbitration methods, wherein each arbitration method specifies whether the initiator is responsible for ensuring time based ordering of packets is handled, and selecting one of the plurality of arbitration methods available in said model (channel arbiter, column 17, lines 16-58), wherein the method further comprises selecting if a delay is to be provided after arbitration has been performed (reqPending, column 17, lines 25-57).

**9-9.** Regarding claim 11, McGeer et al. disclose a method of designing an arbiter in an integrated circuit comprising initiators and targets, and an interconnect coupled to communicate packets between the initiators and targets, said arbiter being provided between said targets and said interconnect, said method comprising the steps of:

using an arbitration model having a plurality of different arbitration methods, wherein each arbitration method specifies whether the initiator is responsible for ensuring time based ordering of packets is handled, and selecting one of the plurality of arbitration methods available in said model (channel arbiter, column 17, lines 16-58).

**9-10.** Regarding claim 12, McGeer et al. disclose a method of designing an arbiter in an integrated circuit comprising initiators and targets, and an interconnect coupled to communicate packets between the initiators and targets, said arbiter being provided between said targets and said interconnect, said method comprising the steps of:



using an arbitration model having a plurality of different arbitration methods, wherein each arbitration method specifies whether the initiator is responsible for ensuring time based ordering of packets is handled, and selecting one of the plurality of arbitration methods available in said model (channel arbiter, column 17, lines 16-58), wherein the method further comprises selecting if a delay is to be provided after arbitration has been performed (reqPending, column 17, lines 25-57).

**9-11.** Regarding claim 13, McGeer et al. disclose a model of an initiator to be used in designing an integrated circuit in which an initiator is arranged to send packet-format requests to one or more targets via an interconnect, said model comprising:

an address decode stage for identifying the target for which a given message is intended (determining the default channel, column 13, lines 33-67); and

a dependency stage for determining the allowability of a request, the operation of said dependency stage being selectable (safe channel, column 14, lines 10-37), said dependency stage being such that the model supports an arrangement where the interconnect is responsible for maintaining the order of responses from a target to the requests (stored in a FIFO resides in the channel, column 13, lines 59-65).

**9-12.** Regarding claim 14, McGeer et al. further disclose a retime stage is provided in said model, the retime stage arranged to provide a delay or no delay (reqPending, column 17, lines 25-57).

**9-13.** Regarding claim 15, McGeer et al. further disclose an access queue is provided for storing requests for which responses have not been received (stored in a FIFO resides in the channel, column 13, lines 59-65).

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**9-14.** Regarding claim 16, McGeer et al. further disclose the maximum number of requests which can be stored in the queue is definable (a specific number of FIFO entries, column 19, lines 11-13).

**9-15.** Regarding claim 17, McGeer et al. disclose a model of a target to be used in designing an integrated circuit in which one or more initiators are arranged to send packet-format requests to a target and the target is arranged to send responses to the requests via an interconnect, said model comprising:

a locking stage which permits locked transactions to occur if required (blocks itself, column 14, lines 33-36); and

a decode state which decodes information stored in a queue into an address for the response (decoding the address, column 49, lines 1-30).

**9-16.** Regarding claim 18, McGeer et al. further disclose said model comprises an access queue which store information on the requests received by the target (shadow registers, column 14, lines 21-63).

**9-17.** Regarding claim 19, McGeer et al. further disclose the maximum number of outstanding request which can be stored in said queue is definable (a set of auxiliary latches are allocated, column 14, lines 24-26).

**9-18.** Regarding claim 20, McGeer et al. further disclose said queue is in the initiator (shadow registers, column 14, lines 21-63).

**9-19.** Regarding claim 25, McGeer et al. disclose a method for designing an initiator in an integrated circuit, said initiator being connected to an interconnect and arranged to issue packet-format requests, said method comprising the steps of:

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defining if the interconnect is to be responsible for ordering responses to requests issued by said initiator (stored in a FIFO resides in the channel, column 13, lines 59-65); and defining if a delay stage is required in said initiator (safe channel, column 14, lines 10-37).

***Allowable Subject Matter***

10. Claims 3-4 would be allowable if the above rejection under 35 U.S.C. 112, first paragraph, is overcome.

***Applicant's Arguments***

11. Applicant argue the following:

(1) "the claims have been amended to specifically recite packet-format requests" (page 9, paper # 7).

(2) "The Kothary disclosure involves communications between several non-integrated devices, and so does not show a system in which the initiators, targets, and interconnect are on an integrated circuit" and "claims 21-23 are not shown or suggested by the Kothary reference" (pages 12-13, paper # 7).

***Response to Arguments***

12. Applicant's arguments have been fully considered.

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**12-1.** Response to Applicant's argument (1). Claims 3 and 4 have not been amended to specifically recite packet-format requests and are rejected under 35 U.S.C. 112, first paragraph, as detailed in section 7 above.

**12-2.** Response to Applicant's argument (2). Applicant's arguments are persuasive. Therefore, the rejections of claims 9, 11, and 21-23 under 35 U.S.C. 102(e) in paper # 5 have been withdrawn. However, upon further consideration, a new grounds of rejection is made, as detailed in sections 9 to 9-19 above.

### ***Conclusion***

**13.** Applicant's amendment necessitated the new ground of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.


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14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Herng-der Day whose telephone number is (703) 305-5269. The examiner can normally be reached on 9:00 - 17:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kevin J Teska can be reached on (703) 305-9704. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Herng-der Day  
January 26, 2004

  
**SAMUEL BRODA, ESQ.**  
**PRIMARY EXAMINER**